Comparison of Ratio Study Practices in Selected States and Provinces

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for the Alberta Equalized Assessment Panel

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OBJECTIVES

The purpose of this study is to review the equalization process and standards from other jurisdictions in Canada and the United States, with identification of key jurisdictions and best practices within these jurisdictions. The primary use of ratio studies by the Province of Alberta is for indirect equalization of local municipal assessments to create a uniform assessment yardstick against which provincial requisitions are levied for financing education. Individual municipal assessing authorities use ratio studies for assessment audit and quality control purposes both during and after the preparation of assessments. However, this study and focuses on the use of ratio studies by state and provincial oversight agencies, rather than by individual assessing authorities.

SELECTION CRITERIA

In the fall of 1997 the International Association of Assessing Officers (IAAO) published a study by Alan Dornfest, of the Idaho State Tax Commission, entitled *"State and Provincial Ratio Study Practices: 1997 Survey Results"*. This study refined and updated previous research on ratio study practices. This latest research was discussed with Mr. Dornfest from the perspective of the primary use of indirect equalization by the Province of Alberta for education funding. He recommended ten states for further research and analysis because these states have excellent practices in place and/or used assessments of real property (live or equalized) in some manner to fund education. The selected states are Connecticut, Idaho, New Hampshire, New Jersey, New Mexico, Pennsylvania, Texas, Utah, Virginia and Washington. In addition, practices were reviewed for all ten Canadian provinces.

QUESTIONNAIRE

The survey of twenty jurisdictions relied on a shorter simplified version of the questionnaire used by Alan Dornfest with some questions modified slightly, and questions added about education funding from property taxation. The completed survey questionnaires are in Appendix "A".

Mr. Dornfest cautioned that "disparities in use and terminology still exist and make interpretation of survey responses somewhat subjective." (Assessment Journal; November/December 1997, p. 23) This problem occurs in part because the survey is completed using a mailed questionnaire with minimal follow up or clarification of responses. Accordingly, for this smaller survey, officials in all jurisdictions were interviewed by telephone to confirm, clarify and update their 1997 responses and request additional information. There were changes or clarifications from the 1997 data in some responses for most jurisdictions. In many jurisdictions questions respecting the use of the property assessment base for raising education revenue were referred to education or finance officials for further information.

RESULTS ANALYSIS

1. Use of Ratio Studies:

All surveyed jurisdictions use assessment to sales ratio (ASR) studies to measure assessment quality. The measures employed and the standards observed vary significantly between jurisdictions. These practices and standards are summarized in two tables set out in Appendix "B", one table for Canadian provinces and another for US states.

There are significant differences amongst the various jurisdictions respecting the purposes for which ratio studies are used. The majority of oversight agencies perform annual ratio studies. All surveyed American jurisdictions do ratio studies annually, and six of ten Canadian provinces do annual studies. However, the purpose of these studies varies widely. Only seven jurisdictions use ratio study results to adjust locally determined values and only five can order reappraisals based on inadequate results. Only three US states employ ratio study results to adjust centrally assessed values such as utilities.

The most common use of ratio studies in both survey groups is to advise local assessment officials respecting assessment quality. In most cases this assessment quality advice is provided retrospectively, that is, after the assessments have been returned. As such, the quality information does not directly affect the actual assessments, but provides insights for the next general assessment. Since the American state oversight agencies are not usually directly involved in assessing property, except for special property types in some states, their ratio studies are not commonly used in the mass appraisal process, although similar studies done by local assessing authorities are used in this way. In Canada, province-wide assessing authorities often use ratio studies as an integral part of the

quality assurance procedures during the preparation of the assessment roll, including using direct equalization when necessary.

In all selected US states the ratio studies are used to equalize assessments, either for levying property taxes by the state or an upper tier municipality or for funding purposes related to state education grants or other state or upper tier municipal government payments to local municipalities or school boards. However, this finding is not representative of all US jurisdictions, since this use was one of the selection criteria for the study. In Canada, only Alberta uses equalized assessment for a province-wide property tax, and only Alberta and Quebec use equalized assessment for levying taxes uniformly amongst several municipalities. In Quebec, equalized assessment is only used within school district boundaries to levy for education purposes. In Alberta, equalized assessment is used for local levies for a variety of shared services amongst municipalities, such as hospitals or fire protection.

2. Standards for Ratio Studies:

The vast majority (16) of jurisdictions surveyed use the coefficient of dispersion (COD) as a measure of assessment uniformity, either with a regulated standard or as a guideline. Within this group most use either the IAAO standard or a state/provincially determined standard that approximates the IAAO standard. The IAAO standard ranges from 10.0 or less to 20.0 or less depending on property type. None of the surveyed jurisdictions rely on the coefficient of variation (COV) their assessment uniformity yardstick.

About one-half of the jurisdictions surveyed in each country measure price related bias (vertical inequity) by means of a test for price related

differential (PRD). All of the jurisdictions except Nova Scotia, use the IAAO standard of .98 to 1.03 for PRD. Nova Scotia uses .95 to 1.05. As with COD tests, confidence in PRD tests reduces with smaller sample sizes. The absence of PRD testing in Alberta should not been considered a serious inadequacy in the existing quality control and audit standards, especially since sample sizes are usually small and often inadequate outside urban areas.

3. Assessment Level Standards:

All jurisdictions (except Pennsylvania) require assessments to be returned at market value (or a proxy for market value, described in different ways in different jurisdictions) and some jurisdictions allow a specified variance from that valuation standard. About one-half of the respondents in both countries can take action to correct variances. In most jurisdictions variances are usually corrected as part of the quality control process or as part the next reassessment, but some American states can order local assessing authorities to reappraise properties. In Virginia, state revenue transfers to local governments can be withheld until compliance with the standard is achieved.

The most common allowed variance is the IAAO standard of 90% to 110%, and all Canadian provinces apply at least this standard. Nova Scotia, New Brunswick and Quebec apply tighter standards, while Newfoundland and Prince Edward Island allow no variance and adjust all assessments to 100% of market value based on the indicated ASR. Most American states also apply the IAAO or a tighter standard, but both New Jersey and New Mexico allow higher variances from market value.

4. Stratification of Properties for Ratio Studies:

As noted earlier, since most of the jurisdictions surveyed perform oversight functions of assessing authorities the two most common purposes for ratio studies is to report on quality and indirectly equalize assessments. The IAAO *Standard on Ratio Studies* suggests that the purpose of the ratio study should influence the choice of stratification methods; for example value stratification is considered more appropriate for indirect equalization than for quality control purposes. However, for quality control purposes (direct equalization), stratification on factors such as property type, age, size, location and other physical characteristics is considered more appropriate. The survey results indicate no consistency in the choice of stratification criteria that would reflect these two different purposes for ratio studies. While only three American jurisdictions perform some stratification by ranges of value, all ten states use the ratio study to equalize assessments for tax levy or grant purposes. In Canada, five (5) provinces use value stratification, but only Alberta uses the results for equalization. Quebec uses value stratification, but only for quality control, not for equalization; all ASRs, without any stratification, are used for equalization amongst Quebec municipalities in the same school district. Overall, the IAAO distinction between stratification factors appropriate for direct equalization as opposed to indirect equalization does not appear in the practices followed by the assessment oversight agencies studied.

The use of location or geography as a stratification factor occurs in every Canadian jurisdiction, but in only two US states. There is no obvious explanation for this difference in practice, but the absence of large state-wide assessing authorities in the US may be a contributing reason. Reviews of ASRs in smaller American assessing authorities might not require the geographic strata that are more common to provincial

assessing authorities in most Canadian provinces other than Alberta and Quebec.

Stratification by property type is common in almost all jurisdictions except Connecticut and Pennsylvania where only overall ratios are calculated; similarly, Quebec does not separate property types for indirect equalization – only for quality control. Three of the surveyed American jurisdictions use only property type, (Idaho, New Hampshire, and Virginia), while three others (New Jersey, Texas and Washington) combine value ranges, by property type within school districts. In comparison to the US practices, almost all Canadian jurisdictions use a variety of physical characteristics for stratification within property classes.

5. Sample Sizes and Outliers:

Sample sizes for ratio studies vary significantly among the surveyed jurisdictions. The average sample size in Canadian jurisdictions is in the range of 15. The surveyed US states average less than 10, but this is not representative of all US jurisdictions, since the 1997 Dornfest/IAAO study, shows many other states with minimum sample sizes of 30 or more. However, most (15 out of 20) of the surveyed jurisdictions use all valid sales, rather than establish sample size goals. Newfoundland allows the assessor to use sales from other municipalities with similar economic conditions.

Although there appears to be some consistency in the approach to sample sizes for ratio studies, the treatment of outliers in those studies is very inconsistent. Most jurisdictions identify outliers and check whether the sale is valid. However, some jurisdictions trim outliers from the ratio study in accordance with predetermined standards, while others leave

trimming to the assessors judgement, and others allow no trimming whatsoever. Quebec allows the assessor to reject any sales "for a price not reasonably corresponding to the actual value". In addition, Quebec has a very complex formula for trimming any remaining outliers.

6. Education Funding from Property Tax:

All surveyed jurisdictions in both the United States and Canada, with the exception of Newfoundland, levy taxation on real property for education purposes. However, very few of the surveyed American jurisdictions have a uniform state-wide dedicated property tax levy for schools. This type of levy exists only in New Hampshire and Washington. In Canada, uniform levies are applied province-wide in Alberta, British Columbia, Manitoba, Ontario (with some variations), New Brunswick, Nova Scotia and Prince Edward Island. However, the property tax levies in New Brunswick and Prince Edward Island are not solely dedicated to education funding.

7. Percentage Education Funding From Property Tax:

Province	%	State	%
Alberta	**39**	**Connecticut**	**60**
British Columbia	**30**	**Idaho**	**24**
Manitoba	**50**	**New Hampshire**	**68**
New Brunswick	**36 ***	**New Jersey**	**54**
Newfoundland	**NIL**	**New Mexico**	**16**
Nova Scotia	**17**	**Pennsylvania**	**60**
Ontario	**43**	**Texas**	**50**
Prince Edward Island	**50 ***	**Utah**	**50**
Quebec	**14**	**Virginia**	**60**
Saskatchewan	**57**	**Washington**	**47**
Average	**37%**	**Average**	**49%**

* percentage assumes that the non-dedicated provincial property tax levy is fully allocated for school purposes.

8. Use of Equalized Assessment for Education Taxation or Funding:

Only one American jurisdiction (Washington) levies a uniform state-wide property tax for education purposes and then redistributes the funds remitted to the state amongst the various school boards. Washington

uses each municipality's equalized assessment to calculate the required contribution (requisition) to the state, but the tax rate is applied to the live assessment. New Hampshire has a uniform state-wide levy of 6.6 mills but the tax revenue is retained by the local school boards, rather than remitted to the state. No other states have uniform state-wide levies for education, although several states have caps on the tax rate that may be levied by local governments for education purposes. Where all, or almost all, municipalities/school districts apply the maximum allowable rate the effect is the same as a uniform state-wide levy. However in all surveyed states, local school boards are allowed to levy for special purposes, in excess of any rate caps – in some cases, sometimes subject to voter approval. As a result, so the total property tax levy is not uniform across the state.

Nonetheless, equalized assessment plays a significant role in determining state funding for education in most surveyed American jurisdictions. With the exceptions of New Mexico and Utah, the state contribution to local school boards is determined by a measure of relative wealth in the local area, measured in whole or part by equalized assessment per pupil.

The Canadian practices are different, but the results are similar. Quebec, Newfoundland and Saskatchewan have no provincial taxation of real property for education purposes. Newfoundland raises no education funds from property taxation and Quebec and Saskatchewan property taxes for education purposes are levied exclusively by local governments.

Indirect equalization of assessments is only done in Alberta and Quebec; in all other provinces, a single provincial assessing authority assesses all property, with the exception of the Winnipeg in Manitoba and six cities in Saskatchewan. The Provincial Assessor in Manitoba does not do a quality audit of Winnipeg assessments. In Saskatchewan, quality control

oversight is exercised by SAMA, but on an advisory basis only without direct adjustment or indirect equalization. The existence of province-wide assessing authorities that apply uniform assessment practices and quality control measures in most Canadian provinces is perceived as eliminating the need for provincial oversight agencies to audit assessment quality and/or directly or indirectly equalize assessments.

Accordingly, provincial property tax levies in British Columbia, Manitoba, Ontario, New Brunswick, Prince Edward Island and Nova Scotia are all based on the same live assessment utilized for local municipal tax levies. Of these six jurisdictions, Manitoba is the only province where a significant portion of the total education funding is raised by additional local school board levies. The average Manitoba school board levy is higher than the uniform provincial mill rate. In the other five provinces, only the Halifax – Dartmouth school board levies on the local property assessment base for school purposes. In the balance of Nova Scotia and in British Columbia, local school boards have taxing power, but do not use it.

9. Exemptions From Property Taxation for Education Purposes:

With some minor exceptions in Manitoba (non-profits only) and Saskatchewan (by local municipal by-law only), all real property in Canada pays both the municipal levies and any levies for school purposes.

With respect to the provinces that tax property other than real property (personal property, business occupancy or machinery and equipment), some variance in practice occurs. In Manitoba, business assessments pay only the municipal levy; in Quebec, machinery and equipment pays only the municipal levies; and, in Alberta machinery and equipment is

not taxed for school purposes. In Saskatchewan and Nova Scotia other assessments pay both municipal and education mill rates. The rest of the provinces do not assess or tax personal property, business occupancy or machinery and equipment.

In the US states surveyed, taxation of personal property, business occupancy and machinery and equipment is more widespread than in Canada. Of the ten states, only New Hampshire, New Jersey and Pennsylvania do not tax property other than real property. The other seven states levy these other assessments for both municipal and school purposes; in Virginia the average tax rates levied against personal property and business machinery and equipment are approximately triple the rates levied on real property assessments.

CONCLUSIONS

This survey of state and provincial assessment practices in twenty (20) jurisdictions illustrates that the practices used in Alberta to conduct ratio studies are equal or superior to most other jurisdictions. Alberta procedures closely follow IAAO standards for COD, assessment level variance, sample size and other criteria; Alberta's stratification procedures allow for a degree of flexibility and complexity in quality control and audit processes that is not applied in many jurisdictions. This flexibility is both an asset and a liability; a potential liability to the extent that local assessing authority choices respecting appropriate strata might serve purposes other than quality assurance.

Alberta's use of equalized assessment for a province-wide education levy is now unique in Canada. In the surveyed US states, it is a practice occurring only in the State of Washington. However, other Canadian provinces apply uniform education or multi-purpose provincial levies to live assessments. These provinces are able to utilize live assessments for

province-wide levies because the assessing authority completes ratio study analyses as part of their quality control processes before assessment rolls are returned. This practice ensures that assessments either meet the established quality standards in the first instance, or are adjusted by direct equalization so as to meet these standards.